

The National Wealth of Selected Countries - A Descriptive Essay
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Abstract: *What determines the wealth of nations? If anyone knew the answer to that question, no one would have heard of Adam Smith as an economist, and for that matter all economists. Economics is really the study of wealth creation under scarcity. The reason economists and others have a hard time pinning down the causes of wealth is that wealth is costly to measure, and many factors and forces are potential determinants. This paper describes, in a simple way, wealth accounting by extending the data assembled by a recent World Bank study. The extension will benefit those seeking to run time-series, cross-section, and/or pooled data regressions to assess how wealth is determined. But even from this simple data mining exercise alone the results indicate significant increases in the wealth of the 92 countries in this sample. From the theoretical standpoint the World Bank's expanded measure under-estimates the wealth of developing countries. Yet, even if the income (GDP) component of their wealth has fallen, total national wealth has increased. The policy implications of this essay are tentative until empirical analysis is carried; even so, the results seem to suggest that GDP is a necessary but not a sufficient requirement for wealth.*

Keywords: *national wealth; Alfred Marshall on wealth, estimating wealth, World Bank's national wealth estimating*

JEL Code: *H00, O15, O49*

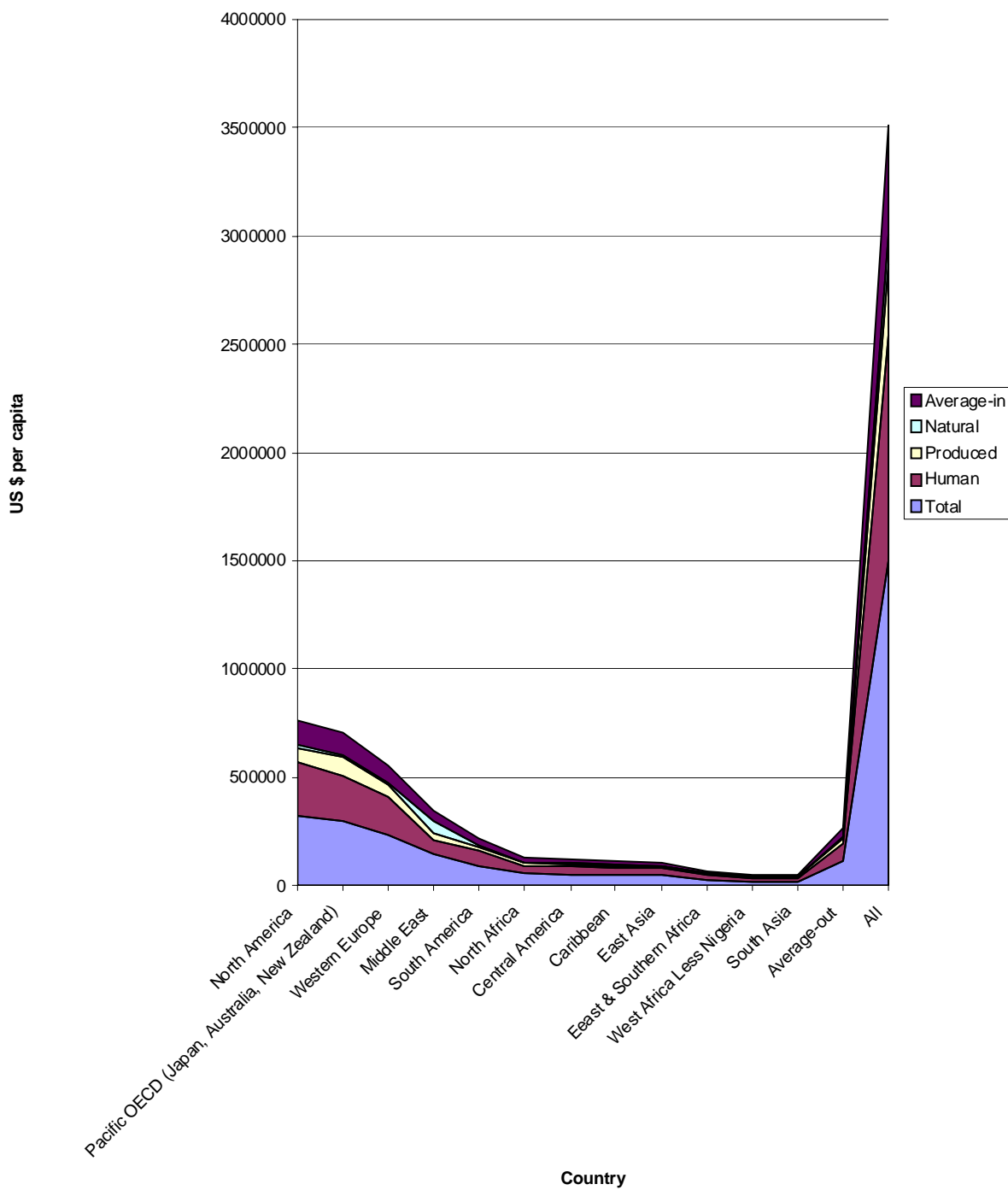
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Wealth is "goods [that] are of such a kind that by adding to the supply of them you make some one better off, by taking away any of them you make him worse off... This description applies as perfectly to the canoe of a savage (sic) and its load of fish as it does to an Atlantic steamship and its rich and varied cargo" (John Bates Clark, 1956, p.41).

Not long ago the World Bank published an interesting study which calculated per capita national wealth, in 1994 US \$, for 92 countries (Kunte, Hamilton, Dixon, and Clemens, 1998). The stated study objectives were to (a) identify and quantify the composition of national wealth, and (b) assess and promote effective management of national wealth. To accomplish these objectives the study authors defined per capita wealth for the *i*th country in any time period *t* as the sum of natural (w_{iN}), human (w_{iH}), and produced (w_{iP}) assets, i.e.,

$$w_i \equiv \sum_j^{m=N+H+P} w_{ij}, \quad i \neq j, \quad j=N,H,P. \quad (1)$$

¹Grateful to Dezerrae Sanchez (student at Arizona State University) for assistance.

Figure 1 - Per capita wealth by geographic region, thousands 1994 US\$
 [Source: Kunte, Hmlton, Dixon, & Clemens (1998), Table 1, p.2]



The study finds that as a percentage of $w_i, w_{iH} > w_{iN} \forall i$, and $w_{iP} > w_{iN}$ for rich countries. The within-region average (*average-in*) per capita wealth ranges from a maximum of US\$109,000 in North America to a minimum of US\$7,333 in South Asia and West Africa (excluding Nigeria), with Eastern and Southern Africa not too far behind at US\$10,000. Across the 92 countries average per capita (*average-out*) wealth is high at US\$115,500 compared to only US\$38,583 within countries over all. Except for the Middle East, wealthy countries and regions are generally richer in produced and human assets than poor countries and regions (Figure 1).

Definition (1) is consistent with what one would find in the literature on the subject (cf. Kuznets, 1941). In some sense it is actually better than others in not equating national wealth to national income. However, as it can be easily inferred from John Bates Clark's quote above, modern accounting invariably under-estimates the national wealth of developing countries by either failing or being unable to count well, if at all, the fish-loaded canoe of "a savage". While irrelevant for this descriptive essay, the preceding statement is nonetheless significant from a practical point of view insofar as the level of wealth is often used to confer status and "great authority" - to use Alfred Marshall's (1961) phrase. Status conference of this type is a misleading interpretation of wealth, but do not take my words for it - take Marshall's instead. According to Marshall wealth consists of (1) *transferable and non-transferable material goods*, both man-made and Nature-given, along with the structure of property rights to them, and (2) *non-transferable internal goods* (human capital goods like education, and social capital goods such as trust) as well as *external goods* that have significant side-effects such as climate (geography), institutions, and other quasi- and pure public goods (see Marshall, 1961, p. 55).² Then national wealth becomes the sum of private assets; public goods (some of them economic and others free such as the river Thames in Marshall English example); the organization of society (State) including the stock of private scientific knowledge in libraries, museums, and so on; and human resources (cf. Alchian and Allen, 1983, p. 129ff).³

The growth of national wealth depends on the nation's rights to wealth, which are governed by national (increasingly international) laws and customs, the state and growth of wealth-building knowledge, and above all significant capital-labor ratios. Capital grows through investment; investment is driven by the desire for rewards that would provide for the future (Knight, 1921, Schumpeter, 1934, Haavelmo, 1960, Lewis, 1965). In order to provide for the future economic agents postpone current consumption to secure future consumption and production. The postponement means saving, and Marshall is right on the money in the conjecture that saving is about "family affection". Although it is questionable whether or not people with families save more than others, it is clear that where the goal of saving is strictly family security, any equivalently valued insurance policy is a good substitute for saving, which opens up a Pandora's box of problems like adverse

²Italicized terms are directly from Marshall and the reader is better informed about the meaning there. Also note that knowledge (human capital) and trust (a form of social capital) are non-transferable, but the processes for building these (education, learning-by-doing, etc.) are transferable. Also, goods include services by Marshall's definition.

³"Cosmopolitan wealth" and financial wealth are excluded; the former is transitory, and therefore it is only quasi- or near- wealth; the latter is payment to debt owed, and hence "negative wealth".

selection and moral hazard (cf. Alchian and Allen, 1972, Alchian and Allen, 1983, Chapter 16).⁴ In a related area Marshall tells of some people in India and Ireland of his time “who do indeed abstain from immediate enjoyment and save up considerable sums with great self-sacrifice, but spend all their savings in lavish festivities at funerals and marriages” (p.225). A recent example: in the 1980s the government of Angola (in Africa) advised against “lavish” slaughtering of cattle and goats for weddings and funerals, and encouraged farmers to sell their animals for money in order to buy school supplies for their children and/or farm implements for themselves. In subsequent years animal production declined significantly in large part because the law took away a major incentive for raising cattle and goats. These two examples, widely separated in time and space, are not intended to ridicule Indians, Irish people, and/or Angolans; instead both examples illustrate the fact that not all saving leads to investment, and that meaningful investment is one that generates a surplus, i.e., capital building is essentially surplus accumulation.

Thus, beyond accounting gimmicks the underestimation of the national wealth of some countries is due in part to another aspect of wealth also found in Marshall: *the value, price, or purchasing power of wealth* (pp. 61-62). Whether approached from the Marshallian or Hicksian demand side, *the real total value of wealth is the total utility it gives to those who have rights to it* - see the Mathematical Appendix (pp. 839-858). Modern resource and environmental economists view the total economic value of a resource (wealth) as the sum of the use and non-use value of wealth. Use value can be direct, indirect, or direct/indirect future options. The direct use value of water is a drink, a shower, and the like; its indirect use value is watering plants which are either consumed directly or indirectly now or in the future. Non-use value includes *existence* (landscape, biodiversity) and *bequest* (biodiversity) values (Pearce, 1993, Perman, et. al., 1998). Granted nice definitions, market-based valuations of wealth are simply ill-equipped to deal with indirect use -value, and nearly handicapped in articulating non-use value of wealth. For sure, significant advances are ever-made in the direction of assessing non-market value (see Tony Prato, 1998, pp. 301-334). Even so, the understatement of wealth in developing countries continues because wealth accountants look to see in these countries similar value for similar things, and no value in stuff they do not know, even though those things give significant utility to their owners. Example: ask a Khoi-San (so-called Bushmen) of Southern Africa to show you his things people in developed countries would consider wealth, and you will probably get back an empty list. Ask him to tell you things that provide significant utility and you get a very long list: bow and arrow, axe, game tracking devices and knowledge, water places, a bag of seeds, medicinal plants, a dog, network of trusted hunting buddies,

⁴A colleague of mine recently remarked that the USA is over-insured (car insurance, dental insurance, health insurance, life insurance, etc.). Movie stars and similar models even have insurance on some or all of their commercial body parts. Supermodel Ms. Klum reportedly has insured her beautiful legs, and Jennifer Lopez (J. Lo) her cute booty as in American slang. There are insurance policies for lips, voice, and I presume for acting dumb and ingenious parts. The point: if insurance secures a future, it is not surprising that the marginal propensity to save is low in the USA. I have also always been intrigued by Alchian and Allen’s (1972, 1983) suggestion that “one measure of human capital is life insurance”(1972, pp.191-193).

Table 1a - 1994 Wealth per capita and national interest rates, 1994-2003

Country	Wealth94	r1994	r1995	r1996	r1997	r1998	r1999	r2000	r2001	r2002	r2003
Argentina	147000	9	9	9	8	8	8	8	7	7	6.5
Australia	297000	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75
Austria	286000	4.5	3	2.5	2.5	2.5	4	5.75	4.25	3.75	3
Bangladesh	22000	5.5	6	7	8	8	7	7	6	6	5
Belgium	287000	4.5	3	2.5	2.75	2.75	4	5.75	4.25	3.75	3
Benin	25000	6	6	6	6	6	6	6	6	6	3
Bolivia	3600	10	13.25	16.5	13.25	14.1	12.5	10	8.5	12.5	7.5
Botswana	89000	13.5	13	13	12.5	12.5	13.25	14.25	14.25	15.25	14.25
Brazil	89000	18.9	22	25.34	45.09	39.41	21.37	18.52	21.43	30.42	23.92
Burkina Faso	14000	6	6	6	6	6	6	6	6	6	4
Burundi	10000	10	10	10	12	12	12	14	14	15.5	14.5
Cameroon	32000	7.75	8.6	7.95	7.5	7	7.3	7	6.5	6.3	6.3
Canada	331000	7.43	5.79	3.25	4.5	5.25	5	6	2.5	3	3
CAR	21000	7.75	8.6	7.75	7.5	7	7.6	7	6.5	6.3	6
Chad	15000	7.75	8.6	7.75	7.5	7	7.6	7	6.5	6.3	6
Chile	148000	13.89	7.96	11.75	7.96	9.12	7.44	8.73	6.5	3	2.45
China	37000	10.08	10.44	9	8.55	4.59	3.24	3.24	3.24	2.7	2.7
Colombia	85000	44.9	40.42	35.05	31.32	42.28	23.05	18.28	16.4	12.73	12.95
Congo	31000	7.75	8.6	7.75	7.5	7	7.6	7	6.5	6.3	6
Costa Rica	96000	37.75	38.5	35	31	37	34	31.5	28.75	31.25	26
Cote d'Ivoire	21000	6	6	6	6	6	6	6	6	6	4.5
Denmark	295000	5	4.25	3.25	3.5	3.5	3	4.75	3.25	2.86	2
Dom. Republic	68000	9	9	9	8	8	8	8	7	7	6.5
Ecuador	67000	44.88	59.41	46.38	37.46	61.84	64.4	13.16	16.48	14.55	11.19
Egypt	52000	14	13.5	13	12.25	12	12	12	11	10	10
El Salvador	40000	9	9	9	8	8	8	8	7	7	6.5
Finland	241000	5.25	4.88	4	4	3.5	4	5.75	4.25	3.75	3
France	297000	7.5	6.63	5.75	4.88	4.44	4	5.75	4.25	3.75	3
Gambia, The	18000	13.5	14	14	14	12	10.5	10	13	18	0
Germany	281000	4.5	3	2.5	2.5	2.5	4	5.75	4.25	3.75	3
Ghana	27000	33	45	45	45	37	27	27	27	24.5	21.5
Greece	142000	20.5	18	16.5	14.5	13.15	11.81	8.1	4.25	3.75	3
Guatemala	52000	9	9	9	8	8	8	8	7	7	6.5
Guinea-Bissau	18000	17	6	6	6	6	6	6	6	6	4.5
Haiti	13000	9	9	9	8	8	8	8	7	7	6.5
Honduras	34000	9	9	9	8	8	8	8	7	7	6.5
India	20000	26.1	12	12	9	9	8	8	6.5	6.25	6
Indonesia	60000	12	13.99	12.8	20	38.44	12.51	14.53	17.62	12.93	8.31
Ireland	219000	12.44	6.5	6.25	6.75	4.06	4	5.75	4.25	3.75	3
Italy	257000	6.25	9	7.5	5.5	3	4	5.75	4.25	3.75	3
Jamaica	45000	7.5	9	9	8	8	8	8	7	7	6.5
Japan	304000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1
Jordan	64000	1.75	8.5	8.5	7.75	9	8	6.5	5	4.5	4.75

Country	Wealth94	r1994	r1995	r1996	r1997	r1998	r1999	r2001	r2001	r2002	r2003
Kenya	18000	8.5	24.5	26.88	32.27	17.07	26.46	23.19	20.02	13.78	14.67
Korea, South	168000	21.5	5	5	5	5	3	3	2.5	2.5	2.5
Lesotho	28000	13.5	15.5	17	15.6	19.5	19	15	13	16.09	15
Madagascar	16000	15	15	15	15	15	15	15	15	15	15
Malawi	7000	40	50	27	23	43	47	50.23	46.8	40	35
Malaysia	137000	4.51	5.49	6.47	7.28	7.41	7.54	7.66	7.79	7.91	8.04
Mali	12000	6	6	6	6	6	6	6	6	6	4.5
Mauritania	24000	12	11.5	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
Mauritius	99000	13.8	11.4	11.82	10.46	17.19	17.19	17.19	17.19	17.19	17.19
Mexico	113000	9	9	9	8	8	8	8	7	7	6.5
Morocco	54000	7.17	7.17	6.6	6.04	5.42	5	4.71	3.79	3.25	26.901
Mozambique	9000	69.7	57.75	32	12.95	9.95	9.95	9.95	9.95	9.95	9.95
Namibia	71000	15.5	17.5	17.75	16	18.75	11.5	11.25	9.25	12.75	7.75
Nepal	16000	11	11	11	9	9	9	7.5	6.5	5.5	5.5
Netherlands	272000	5	4	5.75	4.25	3.75	3	4.12	4.05	3.1	4
New Zealand	277000	9.75	9.8	8.8	9.7	5.6	5	6.5	4.75	5.75	5
Nicaragua	27000	10.5	9	9	8	8	8	8	7	7	6.5
Niger	23000	6	6	6	6	6	6	6	6	6	4.5
Norway	302000	6.75	6.75	6	5	6.75	7.5	8	8.5	8.5	4.25
Pakistan	34000	15	17	20	18	16.5	13	13	10	7.5	7.5
Panama	97000	9	9	9	8	8	8	8	7	7	6.5
Papua New Guinea	39000	6.55	18	10.3	10.2	18.15	12.8	4.41	11.25	13.25	12
Paraguay	61000	19.15	20.5	15	20	20	20	20	20	20	20
Peru	59000	16.08	18.44	18.16	15.94	18.72	17.8	14	14	4.75	4.25
Philippines	44000	8.3	10.83	11.7	14.64	12.4	7.89	13.81	8.3	4.19	5.53
Portugal	175000	8.88	8.5	6.7	5.31	3	4	5.75	4.25	3.75	3
Rwanda	5000	11	16	16	10.75	11.38	11.19	11.69	13	13	14.5
Saudi Arabia	171000	10.5	11.2	12.3	12.7	13.2	12.2	10.7	9.3	9.5	7.2
Senegal	32000	6	6	6	6	6	6	6	6	6	4.5
Sierra Leone	11000	6	6	6	6	6	6	6	6	6	4.5
South Africa	83000	13	15	17	16	19.32	12	12	9.5	13.5	8
Spain	201000	7.38	9	6.25	4.75	3	4	5.75	4.25	3.75	3
Sri Lanka	47000	17	17	17	17	17	16	25	21.5	18	15
Sweden	260000	7	7	3.5	2.5	2	1.5	2	2	2	8.832
Switzerland	352000	3.5	1.5	1	1	1	0.5	3.2	1.59	0.5	0.11
Tanzania	8000	67.5	47.9	19	16.2	17.6	20.2	10.7	8.7	9.18	12.34
Thailand	117000	9.5	10.5	10.5	12.5	12.5	4	4	3.75	3.75	3.75
Togo	18000	6	6	6	6	6	6	6	6	6	4.5
Trinidad & Tobago	128000	13	13	13	13	13	13	13	13	7.25	7
Tunisia	81000	8.88	7.78	12.3	12.7	13.2	12.2	10.7	9.3	9.5	7.2
Turkey	79000	6.9	6.5	5.3	4.8	3.8	4.9	6.5	5.3	4.3	3.4
Uganda	15000	15	13.3	15.85	14.08	9.1	15.75	18.86	8.88	13.08	25.62
United Kingdom	266000	5.8	5.5	4.12	4.05	3.1	4	5.75	4.25	3.75	3
United States	401000	4.75	5.25	5	5	4.5	5	6	1.25	0.75	2
Uruguay	127000	182.3	178.7	160.3	95.5	73.7	66.39	57.26	71.66	316.01	3.193

Country	Wealth94	r1994	r1995	r1996	r1997	r1998	r1999	r2001	r2001	r2002	r2003
Venezuela	11000	48	49	45	45	60	38	38	37	40	28.5
Vietnam	18000	18.9	18.9	10.8	12	6	6	4.8	4.8	5	72.539
Zambia	15000	40.2	40.2	47	17.7	24.81	32.93	25.67	40.1	27.87	14.35
Zimbabwe	30000	29.5	29.5	27	31.5	39.5	74.41	57.84	57.2	29.65	300
Total	935860	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Average	201260	15.51	15.49	13.95	12.47	13.01	12.14	11.24	10.66	12.63	11.98

Table 1b - 1994 Wealth per capita (thousands US\$) and population (millions) level, 1994-2004

Country	Wealth										
	1994	N1994	N1995	N1996	N1997	N1998	N1999	N2000	N2001	N2002	N2003
Argentina	147000	34.86	35.31	35.75	36.2	36.64	37.07	37.49	37.93	38.33	38.74
Australia	297000	17	17.89	18.12	18.35	18.57	18.97	18.17	19.36	19.55	19.73
Austria	286000	8.03	8.05	8.06	8.07	8.08	8.09	8.11	8.13	8.15	8.16
Bangladesh	22000	117.28	119.19	121.19	123.32	125.57	127.94	130.42	132.98	135.66	138.45
Belgium	287000	10.12	10.16	10.18	10.2	10.22	10.24	10.26	10.29	10.31	10.33
Benin	25000	5.31	5.48	5.66	5.85	6.04	6.23	6.43	6.63	6.84	7.04
Bolivia	3600	7.22	7.38	7.54	7.693	7.85	8	8.15	8.3	8.45	8.59
Botswana	89000	1.43	1.47	1.5	1.54	1.57	1.59	1.61	1.62	1.63	1.64
Brazil	89000	160.99	163.54	166.07	168.55	170.96	173.29	175.55	177.75	179.91	182.03
Burkina Faso	14000	10.3	10.61	10.92	11.24	11.56	11.89	12.22	12.55	12.89	13.23
Burundi	10000	5.76	5.39	5.37	5.41	5.49	5.6	5.71	5.84	5.97	6.09
Cameroon	32000	12.94	13.25	13.55	13.85	14.16	14.48	14.79	15.11	15.43	15.75
Canada	331000	29.26	29.62	29.98	30.31	30.63	30.96	31.28	31.59	31.9	32.21
CAR	21000	3.14	3.2	3.26	3.32	3.38	3.44	3.5	3.56	3.62	3.68
Chad	15000	6.91	7.14	7.37	7.62	7.88	8.14	8.42	8.69	8.97	9.25
Chile	148000	14	14.21	14.4	14.59	14.79	14.98	15.15	15.33	15.49	15.66
China	37000	1203.4	1215.8	1227.8	1239.5	1250.4	1260.1	1268.9	1276.9	1284.3	1291.5
Colombia	85000	35.59	36.28	36.97	37.66	38.34	39.02	39.69	40.35	41.01	41.66
Congo	31000	2.47	2.53	2.59	2.65	2.7	2.76	2.81	2.86	2.91	2.95
Costa Rica	96000	3.32	3.38	3.45	3.52	3.58	3.65	3.71	3.77	3.84	3.89
Cote d'Ivoire	21000	13.58	13.99	14.34	14.63	14.88	15.2	15.56	15.91	16.25	16.59
Denmark	295000	5.21	5.23	5.26	5.28	5.3	5.32	5.34	5.36	5.38	5.39
Dom. Republic	68000	7.59	7.72	7.85	7.98	8.11	8.23	8.35	8.48	8.59	8.72
Ecuador	67000	11.21	11.44	11.67	12.14	12.35	12.51	12.7	12.92	13.07	13.21
Egypt	52000	61.98	63.32	64.71	66.13	67.6	69.07	70.49	71.9	73.31	74.72
El Salvador	40000	5.47	5.57	5.67	5.78	5.89	6.01	6.12	6.24	6.35	6.47
Finland	241000	5.09	5.11	5.12	5.13	5.15	5.16	5.17	5.18	5.19	5.2
France	297000	57.91	58.15	58.39	58.62	58.87	59.12	59.38	59.66	59.93	60.18
Gambia, The	18000	1.12	1.16	1.19	1.24	1.28	1.32	1.37	1.41	1.46	1.5
Germany	281000	81.41	81.65	81.89	82.01	82.03	82.07	82.19	82.28	82.35	82.39
Ghana	27000	17.27	17.67	18.06	18.42	18.79	19.16	19.51	19.84	20.16	20.47
Greece	142000	10.43	10.46	10.48	10.5	10.52	10.54	10.56	10.58	10.6	10.63
Guatemala	52000	10.81	11.13	11.45	11.78	12.12	12.47	12.82	13.18	13.54	13.91
Guinea-Bissau	18000	1.12	1.14	1.17	1.19	1.22	1.25	1.28	1.31	1.33	1.36
Haiti	13000	6.56	8	6.79	6.91	7.04	7.17	7.31	7.45	7.61	7.77
Honduras	34000	5.29	5.44	5.59	5.75	5.9	6.04	6.2	6.36	6.51	6.67
India	20000	905.64	922.08	938.37	954.61	970.75	986.79	1002.71	1018.5	1034.17	1049.7
Indonesia	60000	201.95	205.59	209.27	212.98	216.67	220.34	224.4	227.74	231.33	234.89
Ireland	219000	3.59	3.61	3.634	3.67	3.71	3.75	3.79	3.84	3.88	3.92
Italy	257000	57.18	57.33	57.37	57.48	57.55	57.6	57.72	57.85	57.93	57.99
Jamaica	45000	2.55	2.57	2.59	2.61	2.62	2.64	2.653	2.67	2.68	2.69
Japan	304000	125.01	125.34	125.65	125.96	126.25	126.49	126.69	126.89	127.07	127.22
Jordan	64000	4.08	4.2	4.36	4.53	4.69	4.84	4.99	5.15	5.31	5.46

Country	Wealth 1994	N1994	N1995	N1996	N1997	N1998	N1999	N2000	N2001	N2002	N2003
Kenya	18000	26.43	27.06	27.67	28.26	28.83	29.38	29.99	30.65	31.39	32.17
Korea, South	168000	44.76	45.24	45.69	46.13	46.54	46.9	47.26	47.58	47.83	48.04
Lesotho	28000	1.78	1.79	1.81	1.82	1.83	1.84	1.85	1.85	1.853	1.86
Madagascar	16000	12.95	13.34	13.75	14.17	14.59	15.05	15.51	15.98	16.47	16.98
Malawi	7000	9.77	9.66	9.86	10.1	10.36	10.61	10.87	11.13	11.39	11.65
Malaysia	137000	19.18	19.61	20.05	20.48	20.91	21.36	21.79	22.23	22.66	23.093
Mali	12000	8.91	9.16	9.45	9.75	10.05	10.36	10.67	10.98	11.3	11.63
Mauritania	24000	2.28	2.34	2.39	2.45	2.52	2.59	2.67	2.75	2.83	2.91
Mauritius	99000	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.2	1.21
Mexico	113000	91.34	92.88	94.89	95.89	97.33	98.62	99.93	101.25	102.48	103.72
Morocco	54000	27.45	27.98	28.53	29.07	29.59	30.12	30.65	31.17	31.69	32.21
Mozambique	9000	14.74	15.69	16.19	16.6	17	17.39	17.77	18.13	18.47	18.8
Namibia	71000	1.64	1.69	1.73	1.785	1.82	1.86	1.91	1.95	1.97	1.99
Nepal	16000	21.37	21.91	22.45	23	23.56	24.13	24.7	25.29	25.87	26.47
Netherlands	272000	15.38	15.46	15.53	15.61	15.69	15.8	15.91	16.02	16.12	16.22
New Zealand	277000	3.52	3.57	3.62	3.68	3.73	3.77	3.82	3.86	3.91	3.95
Nicaragua	27000	4.26	4.38	4.499	4.61	4.72	4.83	4.93	5.04	5.15	5.25
Niger	23000	8.56	8.82	9.09	9.35	9.61	9.89	10.17	10.47	10.76	11.06
Norway	302000	4.34	4.36	4.38	4.41	4.43	4.46	4.49	4.52	4.54	4.56
Pakistan	34000	125.49	128.69	132.15	135.57	139.01	142.46	146.34	150.34	153.4	156.13
Panama	97000	2.57	2.62	2.67	2.71	2.75	2.79	2.84	2.88	2.92	2.96
Papua New Guinea	39000	4.24	4.35	4.46	4.57	4.69	4.81	4.93	5.05	5.17	5.29
Paraguay	61000	4.74	4.88	5.02	5.154	5.29	5.44	5.59	5.73	5.89	6.04
Peru	59000	23.38	23.85	24.31	24.75	25.17	25.58	25.98	26.38	26.77	27.16
Philippines	44000	70.11	71.72	73.39	75.01	76.58	78.13	79.74	81.37	82.99	84.62
Portugal	175000	10.03	10.07	10.09	10.15	10.23	10.28	10.34	10.39	10.43	10.46
Rwanda	5000	6.42	5.71	6	7.21	7.19	7.36	7.51	7.67	7.85	8.04
Saudi Arabia	171000	19.11	19.97	20.64	21.23	21.84	22.48	23.15	23.833	24.5	25.16
Senegal	32000	8.28	8.53	8.77	9.02	9.27	9.53	9.78	10.05	10.32	10.58
Sierra Leone	11000	4.33	4.51	4.63	4.73	4.89	5.05	5.2	5.39	5.57	5.73
South Africa	83000	41.21	41.78	42.31	42.84	43.33	43.75	44.07	44.29	44.43	44.48
Spain	201000	39.69	39.75	39.8	39.86	39.91	39.95	40.02	40.09	40.15	40.22
Sri Lanka	47000	18.08	18.3	18.51	18.69	18.89	19.07	19.24	19.41	19.58	19.74
Sweden	260000	8.88	8.89	8.89	8.9	8.91	8.92	8.94	8.95	8.97	8.99
Switzerland	352000	7.12	7.16	7.18	7.19	7.21	7.23	7.27	7.31	7.36	7.41
Tanzania	8000	28.56	29.47	30.06	30.69	31.47	32.26	33.07	33.83	34.59	35.36
Thailand	117000	58.17	58.89	59.61	60.31	61	61.68	62.35	63.01	63.65	64.27
Togo	18000	4	4.23	4.44	4.61	4.76	4.89	5.03	5.17	5.29	5.43
Trinidad & Tobago	128000	1.17	1.16	1.15	1.14	1.14	1.13	1.13	1.12	1.11	1.12
Tunisia	81000	8.83	8.97	9.11	9.232	9.35	9.46	9.56	9.67	9.77	9.87
Turkey	79000	60.22	61.19	62.13	63.058	63.95	64.82	65.67	66.49	67.31	68.11
Uganda	15000	19.57	20.09	20.62	21.21	21.83	22.54	23.25	23.97	24.74	25.56
United Kingdom	266000	58.21	58.43	58.62	58.81	59.04	59.29	59.52	59.72	59.91	60.09
United States	401000	263.44	266.56	269.67	272.91	276.12	279.29	282.34	285.02	287.68	290.34
Uruguay	127000	3.22	3.24	3.26	3.29	3.3	3.32	3.34	3.36	3.38	3.39

game meat sharing rules etc.⁵ Yet a conventional wealth accountant would most likely value both lists zero, even though as a visiting tourist the same accountant is willing to pay a good price for the Bushman's bow and arrow, and even price it higher than the purchase price as an inheritance to his/her children or local museum. This is precisely the power of JB Clark's point above, but I resist the urge to go further than that because the goal of this essay is to describe (not analyze) how the sample of countries in the World Bank study have fared since 1994. This requires a common starting point and (1) is good enough an approximation. Next I project the World Bank's study data to 2003 on the basis of simple assumptions about the rates of national interest and population growth beginning with the raw data in Table 1. Column "wealth 1994" of Table 1a presents per capita national wealth in 1994 as calculated by Kunte, Hamilton, Dixon, and Clemens (1998). The remaining columns of Table 1a display national interest rates (r_{it}) for the 1994-2003 period. Interest rates are annual averages drawn from the IMF's IFS (2003, 2004).⁶ While the first two columns of Tables 1a and 1b are identical, Columns N_{it} present mid-year population - million people (U.S. Bureau of Census, 2005), and is complete. Regional data or data for economic groupings are used to fill the interest rate gaps in the series, e.g., EU data is used when UK data is missing.

I. Projections

Assume that in each i th country there exists a benevolent caretaker (government) who each and every year invests national wealth at a national rate of interest equal to the Central Bank discount rate (r_i) such that (in a logarithmic space)

$$w_{it} = (1 + r_i)w_{it-1}, r_i \neq 0 \text{ all } i, t \quad (2)$$

where $r_i w_{it-1}$ is standard wealth upon which saving and hence surplus depends, t is the current year, $t-1$ is the preceding period, and r_i is the Central Bank discount rate. Note here that (2) is equivalent to

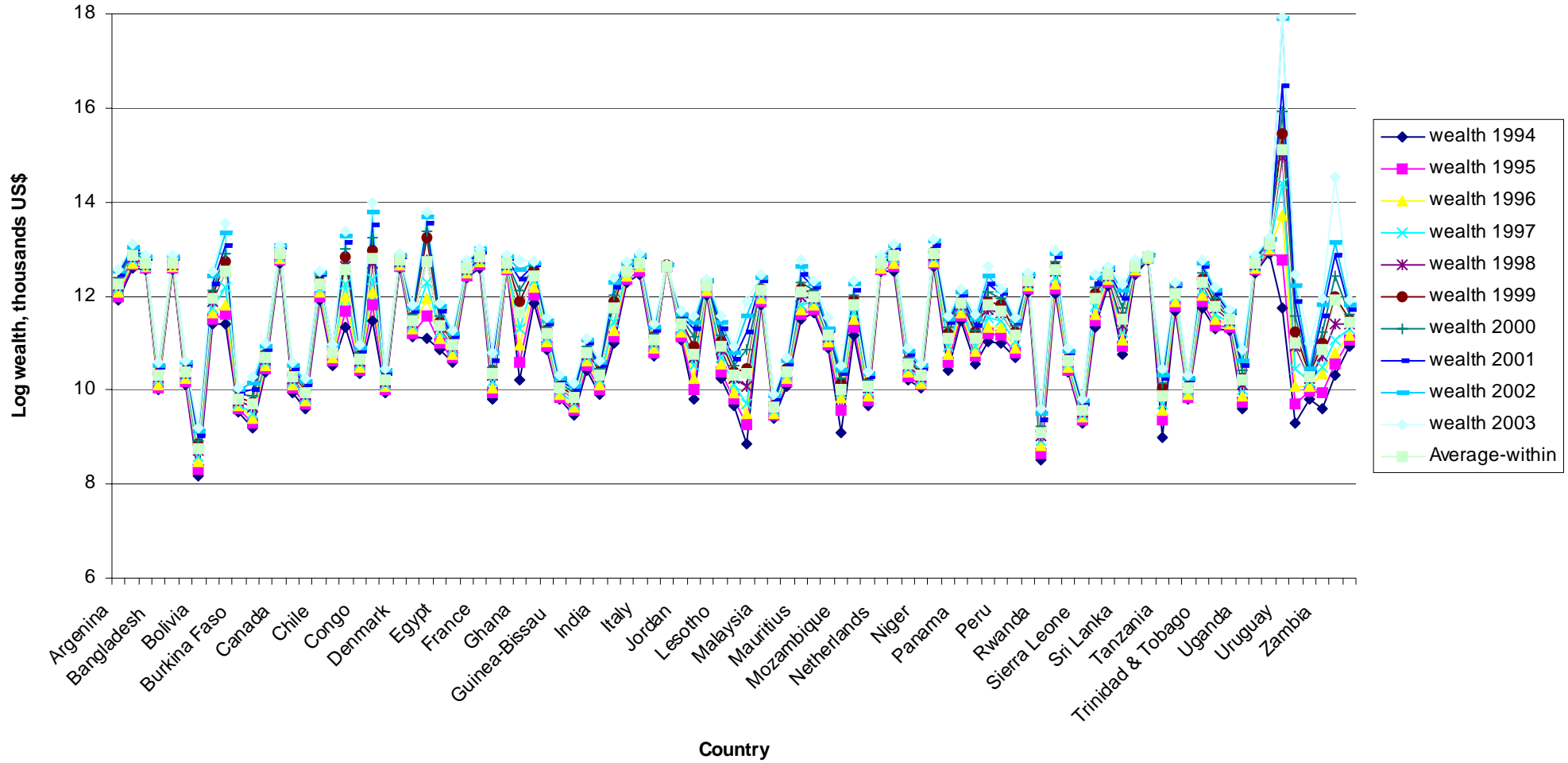
$$w_{it} = (1 + r_i)^T w_{it-1}, T = t = 1, \quad (2')$$

for each year - meaning that each year $w_{it} > w_{it-1} = w_{it} \div (1 + r_i)$. Figure 2a presents per capita wealth when not adjusted for population. Clearly wealth is higher in each country in t than $t-1$, and is

⁵Trust and rules are important because, in my mind, an economy like one portrayed by Disneyland's attraction "Pirates of the Caribbean" will never become wealth no matter how good pirates become. Also note that a dog can be capital in one moment and companion in another and a fire is both physical and social capital, and its values would rise and fall accordingly.

⁶I make no effort to describe how the World Bank assembled its data - see references for detail.

Figure 2a - Wealth per capita unadjusted for population growth, 1994-2003



especially pronounced for high interest rate countries: Zimbabwe, Zambia, and Venezuela in the 2000s, and Uruguay, Tanzania, Mozambique, Ecuador and Costa Rica in the 1990s, to mention a few.

What is the rate of growth of (2)? It is

$$\dot{w}_{it} = w_{it} - w_{it-1}, \quad (3)$$

and is displayed in Figure 2b below. The figure shows wealth growing rapidly for the high ri countries. The question that the rapid increase poses is *what the value of wealth is*. While there is no clear cut answer to that, the question points out an obvious problem, and that is that (2) and (3) assume that either wealth is independent of population growth or that population did not grow between 1994 and 2003. We know that is not the case. So (2) and (3) can be adjusted for population growth as

$$w_{it}^* = (1 - \dot{n}_i) w_{it}, \quad \dot{n}_i > 0, \text{ all } i, t \quad (4)$$

where \dot{n} is the population growth rate. Here too note that

$$w_{it} = \frac{W_{it}}{N_{it}} \ni w_{it}^* = \frac{w_{it}}{N_{it}}. \quad (4')$$

However, (4') must be avoided as it double-adjusts wealth for population. The correct adjustment gives the adjusted growth rate of wealth as

$$\dot{w}_{it}^* = w_{it}^* - w_{it-1}^*. \quad (5)$$

Figures 3a and 3b are graphical representations of (4) and (5). The level of wealth in this case is no longer as high because growth is not as rapid as in the unadjusted case above, as Figures 4a and 4b show. Unadjusted for population growth, average per capita wealth across the 92 countries (average-across) rose to US\$123,078.00 in 2001 before falling to US\$43,462.77 in 2003 compared to US\$55,755.43 in 1994. Adjusted for population growth average-across increased from US\$20,188.03 in 1995 to US\$31,651.79 in 2003. There are significant variations among and across countries.

Figure 4a - Cross-country average per capita wealth, 1994-2003

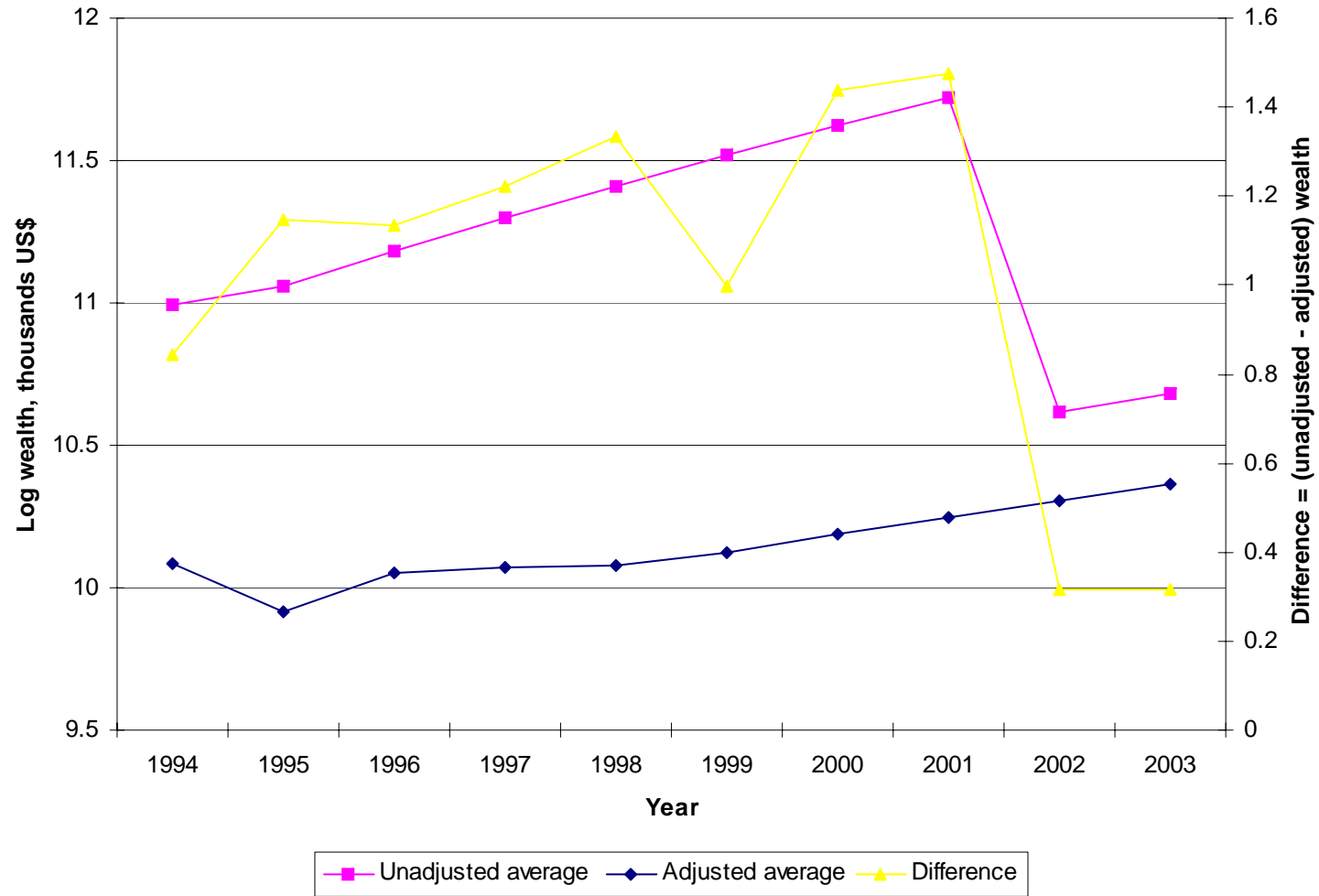
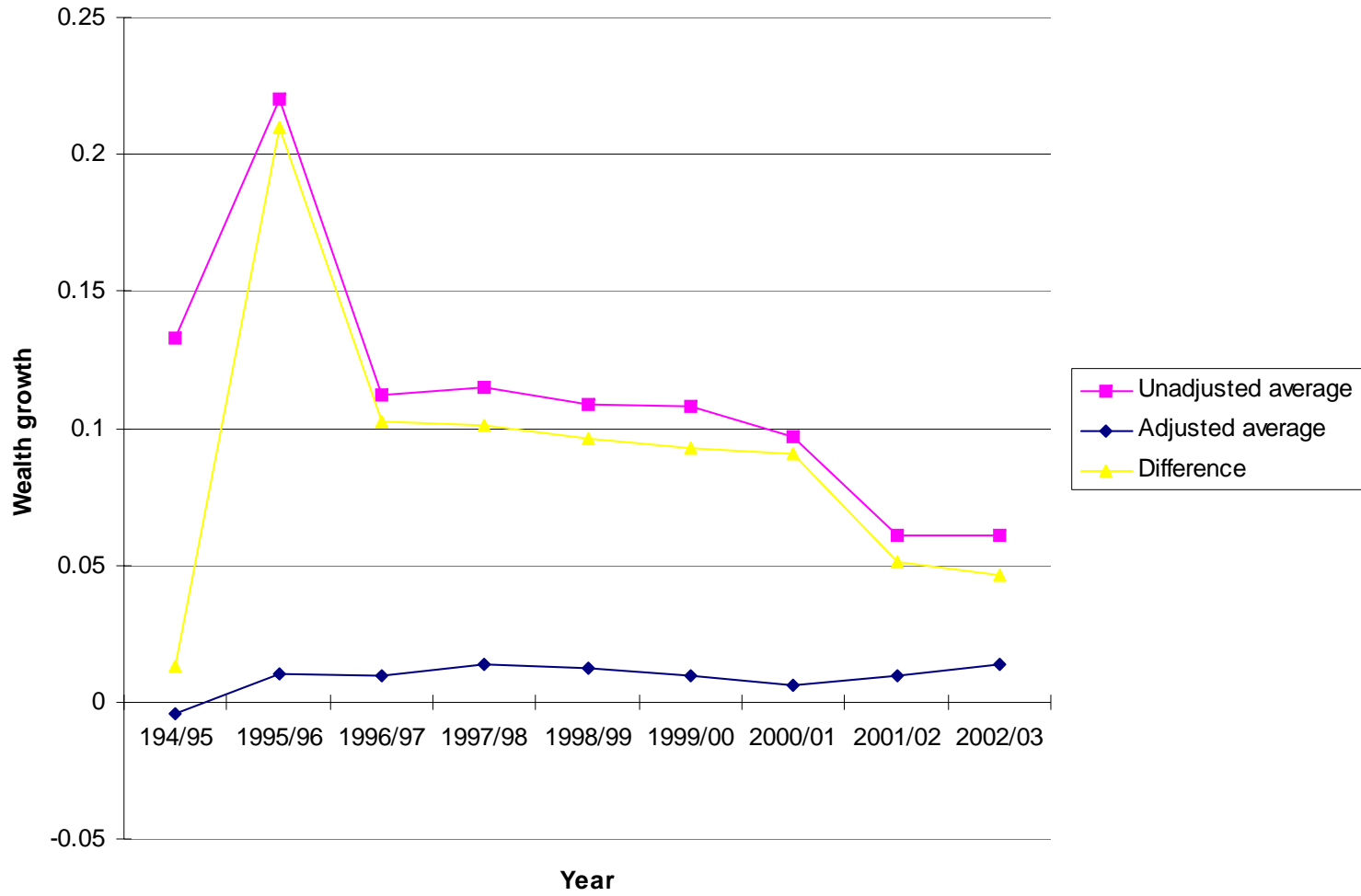


Figure 4b - Cross-country wealth growth rate, 1994/95-2002/03

II. Concluding Remarks

Efforts to measure GDP better have also spurred a search for measures of “genuine” wealth (see Oulton, 2004, and Osberg and Sharpe, 2002 for excellent reference). In this respect the World Bank study is a significant practical step in the right direction. But from a theoretical point of view any measure of wealth that does not portray its utility is likely deficient; i.e., Keynes is still valid: people do not desire wealth for the sake of wealth, they desire the satisfaction wealth affords them. However, attempts to devise a method that reflects the utility of wealth may be ultimately too costly to devise as interpersonal comparison of satisfaction is inconsistent with utility theory.

Despite obvious limitations, and assuming IMF national interest rate statistics are correct, wealth for the 92 countries increased somewhat between 1994 and 2003. For instance the country of Bolivia, is at least US\$4000 richer in 2003 than it was in 1994, even after taking population growth into account. However, turning to a highly indebted country like Zambia it seems that high growth of wealth was financed by costly borrowing. Thus, although wealth is up, its value (utility) or at least its marginal utility is low. To inform policy there is a need for descriptive data mining.

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